THE AMERICAN ARCHITECT AND BUILDING NEWS.

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IT was long ago whispered that a good many things had been admitted to the art department of the Centennial, without the approbation of the committee of artists to whom the selection was intrusted, and even in defiance of their rejection. It now appears that the committee, after having as early as last June sent a remonstrance in the matter to Mr. Goshorn, the Director-General, and having waited in vain for an answer to their remonstrance, have made a public protest against the discourtesy that has been put upon them. They call attention to their first instructions, which declared that the American art exhibit was committed to their hands, that they should be held responsible for its character, and that no work of art should be admitted without their approval; and after protesting against the "deliberate violation of the compact by the chief of the Art Bureau, acting under the authority of the Director-General," they disclaim all responsibility for the mass of crude and ill-arranged works which lower the tone of the American art exhibit. We do not know whether the authorities will offer any explanation of their action; but it is difficult to see how any explanation can do away with the fact that an indignity was offered to the committee. Their selections were very likely not in all cases judicious, this certainly were not in all cases satisfactory: but they were chosen as the best men attainable; and, after having thrown the responsibility upon them, to annul their authority not only exposes them to contempt, as they urged in their remonstrance, but adds gratuitously to the burden of personal ill-will which any performance of their duty of rejection was sure to in some degree bring upon them. Nor was it likely that their selection would be improved by the additions of any other judge, unless he were a judge of distinctly higher capability than they. The greatest injury, on the whole, is the discrediting of the Exhibition by any lack of straightforward dealing. It would be a great pity, when the general management of the affair has been so honorable, if the administration of any department should leave an ill savor behind it.

THE central *flèche* of the cathedral at Rouen, so long incomplete, has been at last finished. The interesting old cathedral, a conglomerate of the work of all the church-building ages, — from the base of the north tower of the façade, relic of the old church consecrated by William the Conqueror, and the splendid thirteenth-century choir, down to the famous Butter-tower on the south of the flamboyant façade begun in the sixteenth century by the Cardinal of Amboise, — can show nothing more anomalous than this *flèche* at the crossing of the nave and transept. A lofty wooden tower and spire covered with lead, built in the sixteenth century, stood there till 1822, when it was set on fire by lightning, and destroyed. Its present successor is the design of Alavoine, an architect whose fame dates back to the reign of the first Napoleon. It was begun by him in 1824, and left unfinished at his death ten years after, remaining so till most persons who saw it conceived the hope that it never would be finished, and that it would not be left there unfinished much longer. It is only within a year or two that work on it has been resumed. It is a monstrous, attenuated, openwork structure of cast iron, poor and mean in design, as might be expected of a Gothic work of the time when it was designed, a mere scaffolding of thin lines set off by fringes of countless thin crockets, — a painful disfigurement of the building. Its completion is an epoch, however, in the history of the cathedral; and the local papers, unable perhaps to find in it any greater excellence, are taking their turn in rejoicing at the precarious distinction of having in their town the highest building in the world; for the new *flèche*, it is said, is one hundred and fifty mètres (492 feet) high.

THE history of the central tower thus crowned is somewhat remarkable. The original cathedral, founded in 1055, is said to have had a central tower with a pyramidal roof of stone, which was destroyed by lightning sixty years after it was finished. When the church was rebuilt, in the thirteenth century, a spire was added here, which was also destroyed by lightning in 1514. In 1542 Cardinal D'Amboise undertook to rebuild it. It was decided to build it in wood; and, the tower having been somewhat damaged, a conference was held of architects from Chartres, Beauvais, Honfleur, and Carenten, to decide whether it was safe to put the spire upon it. The conference decided that the tower was not secure; nevertheless the cardinal persisted. The spire was constructed by Robert Becquet, — who in 1530 had built the roof of the choir, — and lasted till 1822. Becquet, by the way, besides being carpenter and architect, was a poet, and carried off the prize of the Rose at one of the Palinodes. When Alavoine was called to replace the spire, mindful of the repeated ravages of the lightning and the flames, he cast about for something that should be proof against both. Cast iron was just coming into vogue as a building-material, and he decided to use that; setting an example that has been many times followed. After his death, the old fear of the insecurity of the tower, which was thus to be loaded with a heavier weight than before, was revived, and prevented any thing being done to complete the spire, till, on recent examination, it was decided to be safe; and the work now finished was recommenced. Alavoine, by training a classicist, like all the architects of his time, although he had been employed on restorations of the Cathedral of St. Denis and Seez, had been appointed to build the Column of July in the Place de la Bastille, and had laid the foundations of it before his death, when it passed into the hands of M. Duc, who was then his inspector, and to whom the design of the existing column is due, as is well known.

VISITORS to the Centennial — that is, everybody — may remember with some interest the drawings of an Italian establishment now building, we believe, for the performance of the rite of cremation. The advocacy of this process, which attracted much attention some time ago, has not altogether subsided. At the congress or convention of the German Architects' and Engineers' Associations, which was held at Munich in September, one of the most striking addresses was that by Herr von Schmädel, architect, of Munich, who argued strongly in favor of cremation, and submitted designs of a structure and appliances which he would have provided in a public cemetery to meet all the requirements of the process and its attendant ceremonies. Like all the modern proposals, Herr von Schmädel's project provides for burning the bodies in closed ovens; and the system he would employ is that of Siemens, in which the fuel used is gas. Regulated streams of gas and air are introduced into a fire-chamber where the flame is forced through a loose heap of

fire-clay or similar material, which is thus brought to a white heat. The burnt gases pass over a bridge into a second chamber called the regenerator, where the body is placed; and, though the flame does not reach this chamber, the gases and accompanying air are so intensely and uniformly heated by passing through the glowing heap of fire-clay that the regenerator is raised to a low red heat. "In this heat," says Herr von Schmädel naïvely, "the burning of the body not only gives no shock, but even makes a truly sublime impression, since it is seen to consume away rapidly and completely without smoke, and untouched by any flame save its own."

HERR VON SCHMÄDEL illustrated his address with an elaborate design for a group of mortuary buildings which should occupy the centre of a cemetery; and, in fact, would practically be the cemetery itself, we should suppose. The central building of the group contained the halls and appliances for the funeral services; right and left were wings, containing reception-rooms for the bodies, with chambers for watchers, rooms for physicians and inspectors, for chemical or other *post-mortem* investigations in legal examinations, and the necessary accommodations for attendants. Works for supplying the gas were provided, a little removed from the main buildings. The ground floor of the central building was occupied by the furnaces for the cremation, with six sets of fire-chambers, regenerators, etc., in front of which were rooms for the preparation of the bodies, and the inurning of the ashes. Above, in the principal story, was a large hall for the celebration of funeral services, flanked by two smaller ones; the principal hall being intended for public, and the smaller ones for private, funerals. Each of the halls contained a catafalque and sarcophagus for the reception of the coffins, so contrived that when the funeral service had been read, the sarcophagus could be made to sink silently and invisibly through the catafalque and the floor, into the rooms below, where the coffin was to be transferred to the furnace. These halls, to which, we are told, a churchlike character was given, were provided with receiving-niches, in which the cinerary urns might be temporarily placed when their permanent resting-place was not yet ready for them; and the large hall was to have galleries and an organ. Stretching out to right and left before the wings of the building, were to be long arcaded corridors sweeping forward in curved arms, containing the *columbaria*, or rows of niches for the urns, and communicating with vaults or chapels for private burial-places. No debate is reported which should indicate the opinion of the Congress on Herr von Schmädel's proposition, although the address was received, says the *Deutsche Bauzeitung*, with lively applause.

ONE of the most disastrous forms of kleptomania is that which induces relic-hunters to destroy precious things, and carry them piecemeal to their several homes, for the sake of preserving memorials of them. The prevailing rage for "antiquities" and bric-à-brac has aggravated this pernicious affection to an alarming degree. Astonishing stories are told of the ravages inflicted at Philadelphia by the thefts of the relic-hunters, down to an old lady who was found digging to pieces valuable mosaics, for the sake of memorial stones. The most flagrant case we have heard of lately was that reported some time ago of the visitor detected by the Dean of Chester (England), in the act of chopping off the wing of an angel in one of the sculptures of the choir so recently restored by Sir Gilbert Scott. It is to be hoped that the childish passion for accumulating odds and ends of things may speedily become unfashionable since it has become so ruinous. It is a singular form of veneration that breaks its object to pieces for the sake of securing a portable fragment. Now the New York *Tribune* calls attention to the depredation of relic-hunters, which are really laying waste the beautiful Yellowstone region, which the unusual wisdom of Congress has set apart forever as a national park. The beautiful deposits of mineral springs and geysers are being recklessly despoiled and mutilated, says the *Tribune;* and "specimens" have even been carried off by the wagon-load to be peddled about as curiosities. The *Tribune* laments the lack of supervision over the park, and thinks that the Government should immediately pass stringent orders to protect it, enforcing them by a police force. It would probably be a matter of difficulty and expense to maintain such a force in so remote a region; but, when we have any soldiers to spare from Indian wars and Southern elections, the Government might find its account in using some of them to protect this region, which, precious as it now is, will in a few years become priceless if its value is not ruined by the spoilers.

ARCHITECTURAL STUDENTS. — IV.

THE architect's sheet-anchor is his drawing. We doubt if any architect ever achieved real success without being a thorough draughtsman. We have known one or two persons who have succeeded fairly before the world without it; but they were simply clever compilers and capable critics. To design, it is absolutely essential to draw; and we mean, of course, to draw with real excellence and readiness. To people who have experience, these things go without saying; but to novices they may not be so evident. Examination will show that the persons who design well are those who draw well; and this is true alike of individuals or of classes. The French owe their skill in design in great measure to the care their Government has long taken to provide abundant public instruction in drawing. English industrial design has improved enormously since the establishment of the public drawing-schools; and that notwithstanding the feebleness of the Kensingtonian method, which prevails in them. The Americans are as weak in the one department as in the other.

Mechanical accuracy in drawing is by no means enough. On the contrary, artistic expression and freedom are yet more essential; so that what is called mechanical drawing is as far as possible from being sufficient for the needs of the designer, unless, at least, he be an artisan whose real means of expression is something else than the pencil, — the modelling-tool or the chisel, for instance. It is necessary to do away with the notion that "artistic" drawing is only an ornamental acquisition. For a designer's drawing is not merely his means of utterance, as people are apt to think: it is still more important as his instrument of thought and of mental discipline; and the difference between artistic drawing and mechanical, beauty apart, may be said to be that one is a means of expression, and the other of record simply. Though a designer must depend, first of all, on the clearness of his conceptions, he is constantly testing and shaping them by the use of his pencil; and for this he needs the utmost freedom and precision in the use of it. For his purpose, the triangle and the bow-pencil are altogether inefficient appliances. The final test of fitness, to him, is in refinements which those instruments cannot reach. As a question of mental training, the case is still stronger. His pencil is his means of study, both in acquisition and in discipline. His mental equipment is his knowledge of forms and his sense of proportion. The one is to be acquired, and the other developed, by the use of his pencil. His use of it will be at once the test and the condition of his knowledge; for he cannot know form accurately, except as he has drawn it with precision, nor can he draw with precision what he does not know accurately. As for the power of invention and the command of proportion, on which design depends, they cannot be developed without the training of the pencil. Conception and execution cannot be divorced, — at least, not till they have been married. His pencil serves him precisely

as language serves in ordinary thinking. A man acquires ideas by means of language; he gives form to his thought by the use of it. So the quality of the draughtsman's ideas, and the control he has over them, depend very much on the use he has made of his pencil. If therefore an architect, by the time he was capable of practice, should lose his right hand, he would not find his study of drawing thrown away, any more than a man who, having learned to think by having learned to talk, if he should lose his tongue, would lose with it the fruit of his speech.

The reflex action, so to speak, of anybody's use of language upon his habit of thought, makes it of the utmost importance, if he cares to learn to think, that he should not use his language carelessly; and this is a lesson for the architectural student in his drawing. So long as he is working to give a clear expression to something he wants to show, he is working to advantage as a matter of language. But it is as easy to study putting together neat marks on the paper, which have no particular significance, as to roll out fine words with no clear ideas attached; and it is as common, and as distasteful to any one who can see the hollowness of it. A draughtsman should be as intolerant of emptiness of phrase or falsity of statement in drawing, as he would be in serious conversation. Since, moreover, his drawing is the means for storing his mind with ideas of form, he must in common sense see to it that he selects ideas worth storing. Hence the fallacy of assuming, for a designer at all events, that it makes no difference what he draws, so long as he draws it carefully. If he is in search of form he must have good forms. All natural forms may be assumed to be good, though some are better than others; but of artificial forms many are coarse, vulgar, and otherwise bad; and drawing-teachers seem to have a peculiar besetment to place bad forms before their pupils, perhaps because they are easy. The architectural student has to train his mind to the most delicate sense of proportion, of line, and of the relation of line to line. If he labors long over things that have bad lines in them, or are ill proportioned, not only does he waste the time that might have been given to learning good lines and refined proportion, but the bad ones are ready to come into his head and out at his fingers' ends whenever he attempts to supply any. Hence it is of the first importance that he study from good models; and, since the essence of good form and good proportion lies in their subtle refinement, he must not relent at the most severe study of the niceties of these models.

To discriminate between good models and bad is, of course, not so easy for the student who may not always have a competent instructor to guide him. Yet there are so many things within reach whose excellence is unquestioned, that he may safely let alone those about which there can be doubt or has been dispute. The study of plants, for instance, will give him the most varied examples of subtly beautiful lines and charming arrangement. But they need to be studied with the closest care, and servile, but intelligently servile, reproduction. Unluckily the common standard of plant-drawing in prints and decorative work is altogether unworthy and contemptible. The drawings published or sold of them are for the most part so bad artistically, that it is not worth while to engage one's self upon them at all, since originals can always be had. And as matter of practice it is well for the learner to pay little heed to the conventionalizing of forms, which requires all the power of a very skilful draughtsman to be successful. Leaves and plants, except woody stems, should be drawn while they are entirely fresh, by the way; as soon as they begin to grow flaccid or to curl, they had better be thrown away. Still more all casts of plants or of other tender and flexible objects are anathema. It is impossible to make them without destroying the vitality and spring which are the essential qualities of form in the originals. Of conventional and artificial form, with which it is important that the student should early make himself acquainted, Greek ornament, that of the thirteenth century, and, if he will, that of the earliest Renaissance, will furnish him abundant example. For invention and arrangement of line, pure and simple, there is nothing more instructive than a study of Greek vases; and, though originals are not easy to get, there are many photographs, and many beautiful drawings of them, some of which he will probably find accessible. The Greek and thirteenth-century lithic ornament will furnish him the best examples of modelling, alike in feeling though very unlike in type. They are best studied from casts, of course, though photographs from them are valuable; but the common prints of them are unsatisfactory. Those which chiefly stock the market, — the French drawings by Carot and others, for instance, — though superb in manipulation, are hard and unfeeling; no substitute for the originals, even if it were sufficient to draw from the flat. But study from the round is the only thing which will give real command of form; and for training in this, unless it be the figure, of which hereafter, nothing is better than thirteenth-century sculpture. In fact, it may be said that a draughtsman who can draw it really well has the power, if not the knowledge, to draw any thing. Of this the French is, on the whole, the best. The English has perhaps more vivacity and more variety; the French has more refinement of line and modelling, and more beauty of composition.

Of the value of a study of the figure we shall have something to say hereafter; but even if the student were to go no farther than we have already suggested, he would find that a study of the kinds of models we have mentioned would furnish him with a liberal store of ideas for use, and hints for invention; and if he had at all entered into their spirit, the beauties of proportion would have dawned upon him: he would already have reached a point from which feeble or crude or harsh arrangements of line would be contemptible or offensive to him.

DECORATIVE FINE-ART WORK AT PHILADELPHIA.

FURNITURE. — II.

THE Egyptian exhibit is remarkable from the fact that it is divided between two styles. Modern Egyptians seem to prize the work of the ancients, of which such forcible reminders are always before them, while in their decorative work they still cherish the Arabic, which is so closely associated with their religion. While the reigning powers of Turkey have been running after French fashions, Egypt has continued to cultivate the national style of the dominant Semitic race. We therefore find it adhered to in a superb *armoire*, which is richly carved, and inlaid with mother-of-pearl used with temperance and discretion, and carved ivory. The only reminder that it is modern work is found in the fact that it is made of the ebonized wood now so fashionable in Europe, and of which about half of all the furniture in the Exhibition is made. This piece is valued at four thousand dollars. It is by Parvis of Cairo, a European, we presume; but the work is evidently that of natives. He also exhibits several other pieces of nearly equal merit, and a sample of manufactured woodwork in unpolished wood. This last is a pair of doors in the Arabic style. The framework is in light-colored wood, showing the construction; and the panels are curiously subdivided by a sort of fretwork with small irregular carved panels in a darker wood, which, taken together, form a large, symmetrical design covering both doors. It is exhibited, evidently, to show the method of constructing woodwork in the Arabic style. In close proximity to this work of Parvis's is a magnificent door taken from a mosque built in the fourteenth century, the whole elaborately carved in solid ebony and ivory. It has been purchased for the Boston Art Museum, and is a valuable acquisition.

Spain exhibits but one piece of furniture, — an oak sideboard by Forzano Hermanos of Madrid, which is far from creditable to that country, or the jury that has given it a prize medal. It is valued at fifteen hundred dollars. The design is in no particular style; and the piece is only attractive by reason of its great size and the elaborate carving with which it is covered. The panel-carving, by the way, is in a softer wood, representing historical scenes; and the whole is covered with ebonized mouldings, which are stuck on.

In the Russian court, one of the most prominent exhibits is the magnificent showcase, of octagonal form, and entirely made of ebonized wood, used by the Russian American India Rubber Company. As it forms part of another exhibit, there is no card on it to designate the maker or designer. We were assured by a Russian exhibitor that it was of native design and workmanship. The design is unmistakably original, and is like nothing else in the whole exhibition. This article is for sale, and should be purchased by some one of our museums of art for the display of the Russian works that have been purchased. It is well adapted to such a use, being of double plate-glass so that articles can be seen from the inside and outside equally well. The workmanship is unexceptionable, and is a model in its way. Moscow sends some furniture in carved black walnut, in the Renaissance style, showing a decided German influence in design. In a compartment of the Russian court devoted to pianos and billiard-tables, there are shown some inlaid chairs and tables of native design and workmanship.

Austria makes an extensive display of the bent-wood furniture for which she is famous, by two firms, Thonet Brothers and Joseph Kohn, both of Vienna. These manufactures are so well known throughout the world as to need no further mention. Good construction and usefulness are their predominant features, rather than artistic merit. A large ebonized sideboard is exhibited by Carl Stein of Vienna. It has taken a prize medal, but its artistic value cannot be highly rated. It is in the German Renaissance style, too heavy in detail, though well made throughout. The same maker exhibits an extension-table which shows some constructive features entirely new. It is of elaborately carved ebonized wood. The central part is a rectangular box or pedestal, which remains stationary when the table is drawn out, and forms a support for the centre. The four legs are framed into horizontal pieces which radiate from the four corners of the box toward the corners of the table-top. When extended the two legs on each end are drawn away from the box. Thus the principal support always remains in the centre. The English extension tables are generally four-legged, and without central supports. They depend entirely upon the stiffness of the long slides for stability when extended. There are also some reversible dining-tables in the English department, which can be used as billiard-tables; but these are always of uniform size. There are no examples in the Exhibition of extension-tables on Eastlake's plan, with sliding brackets on the ends which admit of extension-leaves on the outside instead of the centre of the table. Nor is there any example of the improvement on Eastlake's idea, made by Mr. George R. Clarke of Boston. In this the sliding brackets have a connecting piece, and two extra legs on each end, giving the table eight legs when extended.

Germany has only two exhibitors of furniture. O. B. Friedrich, of Dresden, contributes some very elaborate work in which porcelain and metal mountings are introduced. One piece is a heavy ebonized cabinet in the Renaissance style, of fine workmanship and finish. The columns supporting the upper entablature are inlaid on four sides with medallions of gilt metal, having grounds of turquoise-blue enamel relieving arabesque designs in gold and darker enamel colors. The effect is rich and pleasing. The same also exhibits a cabinet which is noticeable as one of the few pieces of the kind to be found in the Exhibition, in a style which has been abandoned by most decorators. It is in highly polished ebonized wood, with ormolu metal mountings. The panels of the doors are decorated porcelain, in the centre of each of which is a painting of a bas-relief medallion almost deceptive in effect. The main shelf of the cabinet is also supported on highly decorated porcelain colonettes. The effect is extremely rich and brilliant. Otto Voelker of Berlin exhibits an elaborate carved oak dining-room set, in the Renaissance style, and a very ingenious stag-horn chair which has no wood in its construction; the butt-ends of the antlers, forming the arms, are carved.

In the Belgian court are some good examples of marquetry flooring by Tasson & Wather of Brussels. These are the old hand-made sort which are put down in sections. The specimens shown are samples of actual work done in England and elsewhere. This is the only exhibition of marquetry we have seen except the Dill patent marquetry made by A. H. Andrews & Co. of Chicago. Considering the prevailing demand for polished floors, it is remarkable that no other exhibitors have come forward. We find in the Belgian court, from Brussels, a dining-room set which is a good example of "how not to do it." It is made by some one with the imposing name of Van Ginderdeuren, and consists of a mantle with fireplace entirely of sheet brass, and two brass or copper *répoussé* panels in the frieze, brass fender, blower, etc.; the other pieces being a sideboard, dining-table, two side-tables, and several chairs. The whole is a sample of the kind of work which prevailed ten years ago, carried to the extreme of ornamentation. The fish and vegetable business is done up as usual on the sideboard, while lions' heads do the heavy work on the mantel. The carving is coarse enough to be seen to advantage on the exterior of a house, and stands in striking contrast to the delicate carvings to be seen on every side in the Renaissance furniture of the other courts, and even on that of another exhibitor from Belgium. With all the amount of labor bestowed on this work there is not the least expression of feeling or sentiment about it, such as can be seen in nearly every exhibit in the English department. The whole is conventional, cold, and feelingless. The only work about it of artistic value is that of the brass *répoussé* panels. This set, together with a cabinet by the same maker, has been bought for some American house. The price paid must have been something immense. Another Belgian firm, Suyers, Rany, & Co., exhibit two very good cabinets in the Renaissance style, one in oak and the other in butternut and ebony. Both are treated with a refinement and delicacy seldom met with. One of the most prominent exhibits in the building is the Belgian pulpit by Goyers Frères of Louvain. It is almost the only example of Gothic woodwork outside of the English and American departments. This is familiar to many who have not visited the exhibition through the pictures in the illustrated newspapers. It is imposing by reason of its size and the immense amount of carving distributed over it, including several hundred figures. The mistake in its design is the one generally made in interior church woodwork. It should have been cut in stone and not in wood. Considered as a design for stone, it is pure and appropriate: being made of wood, it is literally built up and not *constructed*. Nothing is gained by making such work as this in wood. A good stone-carver would have given more expression to the carving in his own material. Judged as wood-carving, it may be said that the general conception of the design is good; but the mistake has been made of sandpapering the carved work, and thereby obliterating the tool-marks, a process which is as un-Gothic as any thing can be.

We find nothing more in the shape of furniture before reaching the British and American departments, except a collection of native Indian work exhibited by Watson & Co. of Bombay. This furniture was described and illustrated in the "London and American Art Journal" about a year ago. It is executed in "black wood," which seems to be a material half way between ebony and teak. The hardness of the wood makes the intricacy of the carving all the more remarkable. These pieces are literally covered with the most elaborate of relief carving, so that at a certain distance they have no distinctive form to attract the eye. Even the tops of tables are carved. They are curious and barbaric, but cannot take any position as art work as do the India carpets and shawls. Those who are in search of novelties will probably find in them more work to the superficial foot than can be found elsewhere except on the famous Chinese balls.

THE ILLUSTRATIONS.

HOUSE FOR THE HON. P. T. BARNUM, BLACK ROCK BEACH, CONN. MR. GEORGE PALLISER, ARCHITECT, BRIDGEPORT, CONN.

THE house contains sixteen rooms, and is shingled above the first story. The view is taken from the water, looking inland.

DESIGN FOR THE NEW REREDOS OF TRINITY CHURCH, NEW YORK. MR. F. C. WITHERS, ARCHITECT.

A full description of this reredos will be found in the *American Architect* for Aug. 26.

A COMPETITIVE DESIGN FOR THE SPRING GARDEN BANK AND PENN SAFE DEPOSIT COMPANY BUILDING, PHILADELPHIA, PENN. MR. DAVIS EDMUND SUPPLEE, ARCHITECT.

THE SANITARY CONDITION OF COUNTRY HOUSES.

III.

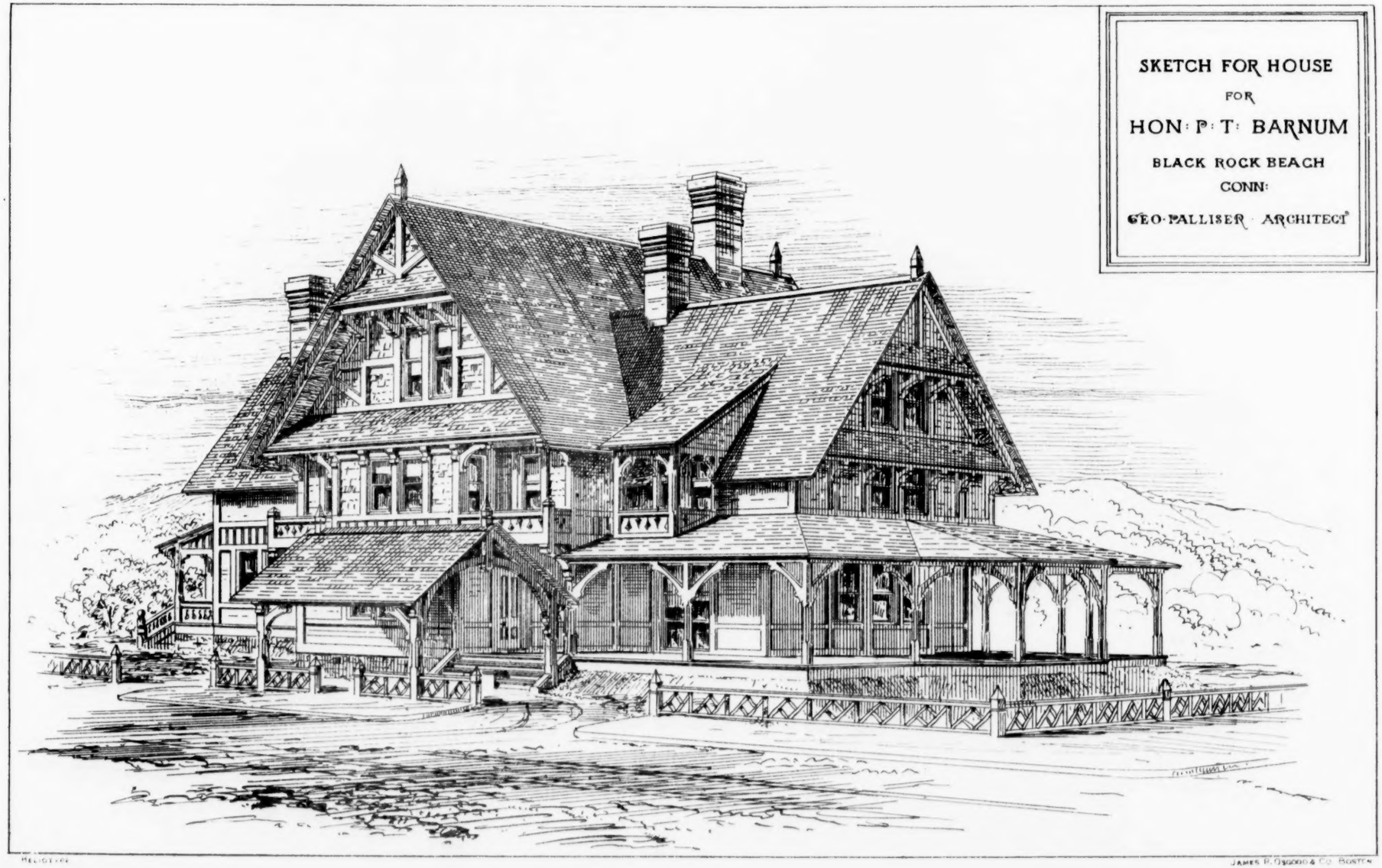
THE tight cesspool into which the drainage of the house discharges is of course hermetically sealed, that there may be no possibility of its emanations tainting the air. It is connected with the outlet of the soil-pipe by the best vitrified pipe, carefully laid. This pipe, for part of its course, runs through soil that had been excavated and refilled at the time of building; through soil, that is, which is sure to settle as time goes on, bringing the weight of

NOTE.

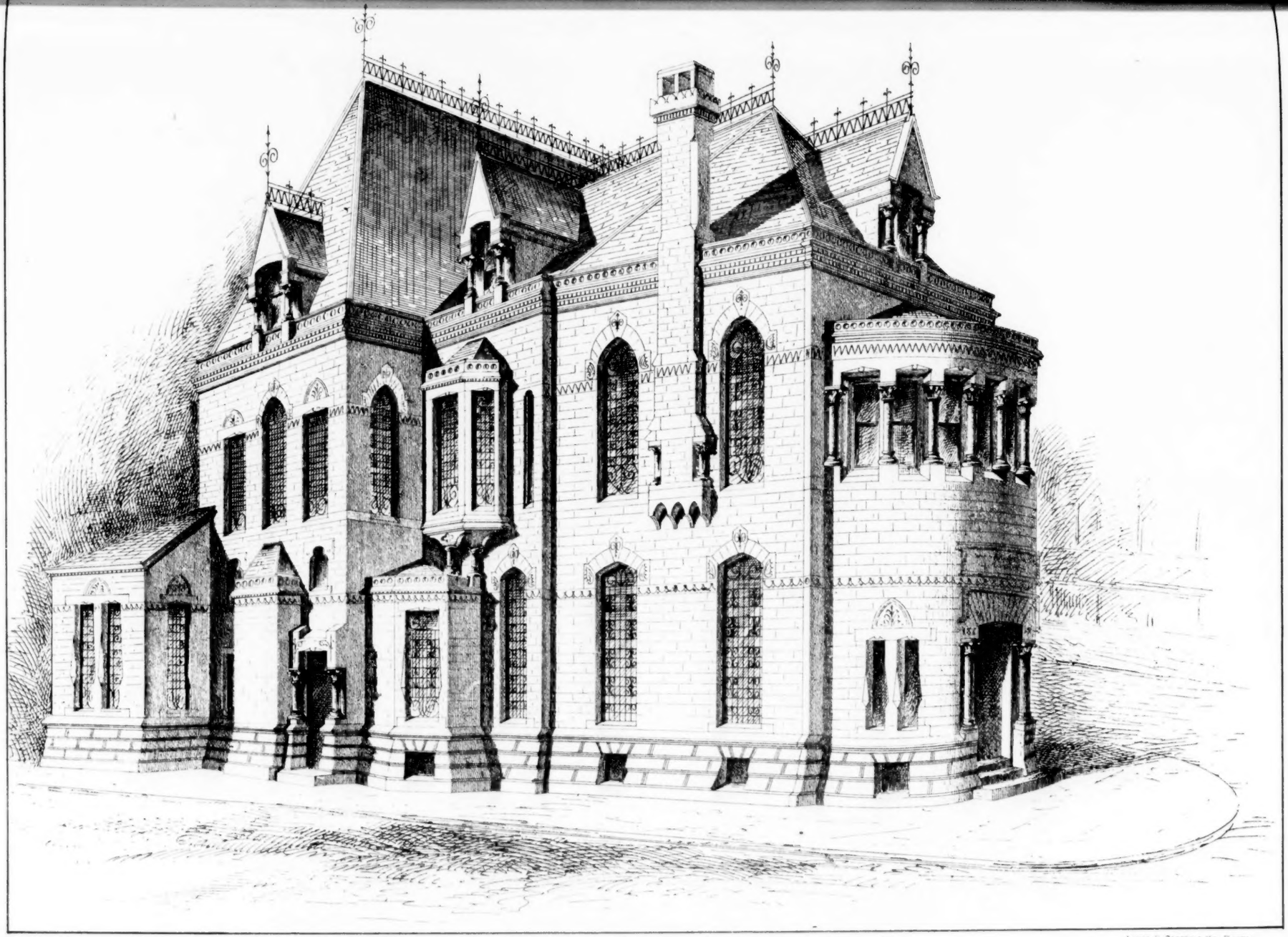
In consequence of the reproduction of Mr. Wither's design for Trinity Church Reredos being delayed, it is omitted from this number, but will be issued with our next.

EDITORS OF "AMERICAN ARCHITECT."

American Architect and Building News Nov. 11. 1876.



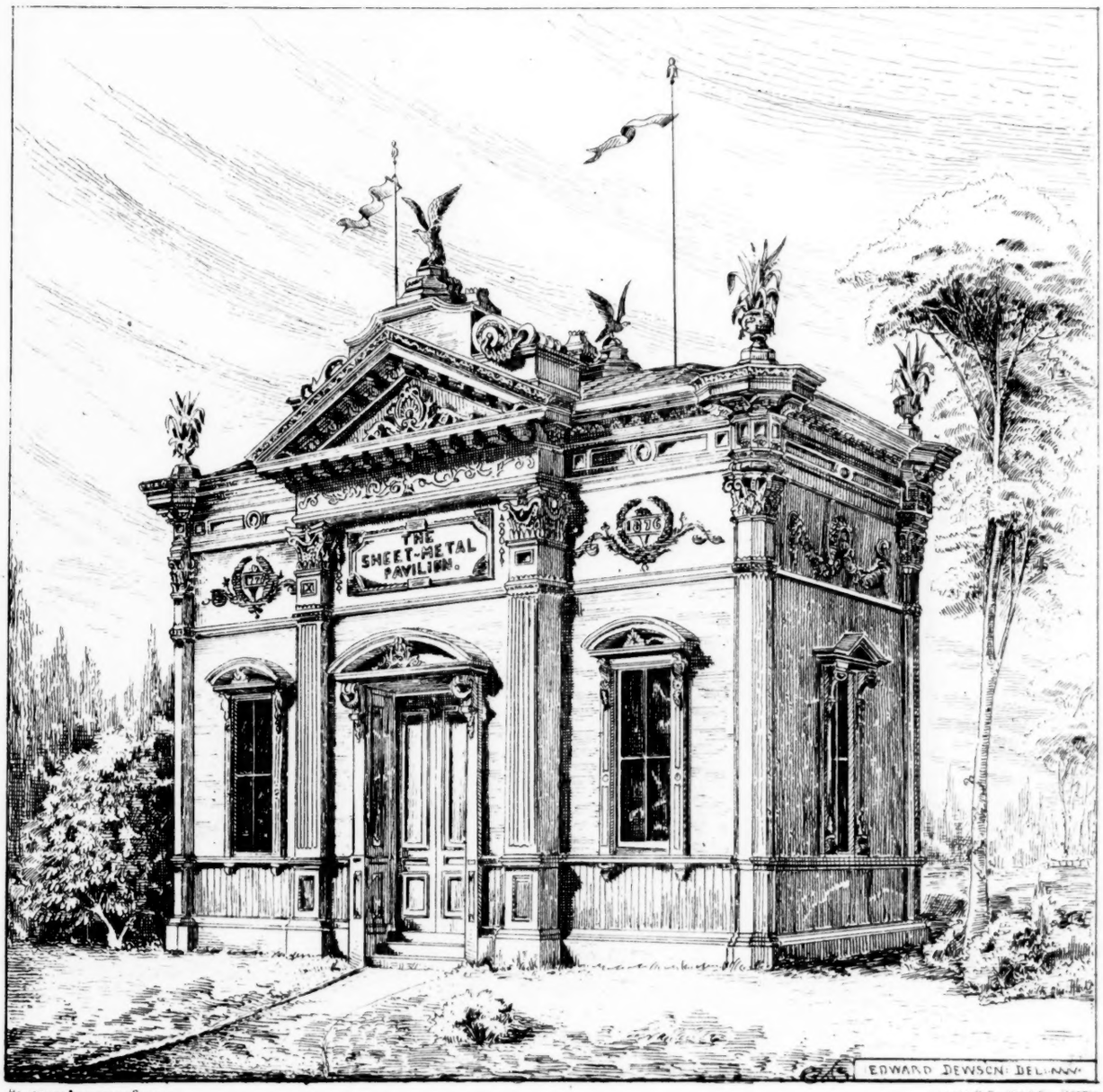
HELIOTYPE
JAMES R. OSGOOD & CO. BOSTON



PROPOSED BANK BUILDING . PHILADELPHIA PA .

Mr. D. E. SUPPLEE, ARCHT.

James R. Osgood & Co. Boston.



HELIOTYPE ADVERTISING SHEET JAMES R. OSGOOD & CO., BOSTON

SHEET METAL PAVILION, CENTENNIAL EXHIBITION.

THE KITTREDGE CORNICE AND ORNAMENT COMPANY.

SALEM, OHIO.

the whole mass lying above the pipes so to bear upon them as quite surely to move them enough to open their joints, so as to allow more or less of their contents to soak away into the ground. Sooner or later this leakage penetrates the foundation-walls, and taints the air of the cellar.

A strong, well-constructed four-inch soil-pipe descends from the trap of the highest water-closet, usually in a straight line, to the ceiling of the cellar, and passes in a straight course, and with a regular descent, to the point of outlet. It has been securely strapped to the floor-beams of the cellar, making it quite certain that a deflection in the main floor of the house, of even an eighth of an inch, will tear it loose from its attachment with the closet, and leave a little crevice for the escape of its gases.

The importance of ventilating the soil-pipe having been recognized, a one and one-half inch lead pipe, leading from its highest point, has been carried out through the roof, closed over at the top to prevent the admission of obstructions, and perforated with a dozen little holes to give egress to the pent-up gases. This is not *ventilation:* it is only *venting*, only the relieving of pressure, — an important office, but by no means a sufficient one. The closets on every floor are of that ghastly foul sort which hold in a lower unventilated chamber nearly all that is admitted to them, save the water alone, until the solid matters, by decomposition, are enabled to pass away in a stream which was insufficient to flush them away as solids. The traps of the lower closets — too little air being supplied through the small venting-holes above the roof — are often emptied by siphon action, where a strong flow is rushing through the pipe from the emptying of a bath on a floor above. To economize the work, traps under the wash-basins are frequently omitted, an introduction of the waste-pipe into the trap of the water-closet being deemed sufficient, even where the communication is by means of a long and nearly horizontal waste-pipe.

In time, all the foul contents of the cesspool, and the foul slime of the soil-pipe, having been for years producing acrid gases, the leaden traps under the closets, and the horizontal leaden connection-pipes have become more or less honeycombed; and here and there openings have appeared in the pipes: these being in their upper sides, where the usual plumber's inspection for leakage does not detect them, they remain quite unsuspected, and they go on year after year pouring out into the house their poisonous exhalations.

The influence of even very small openings of this sort is far greater than would be believed. I was recently told of a household in New York which for years had been a reliable source of income to its attending physician. Upon his death, a younger doctor, an enthusiastic sanitarian, succeeded him. He soon became convinced that the illness that had so long prevailed was due to emanations from the drainage-pipes of the house. Plumbers were employed to make a thorough inspection, and they reported every thing in perfect order. The cases of disease kept occurring; and a sanitary inspector from the Board of Health examined the house, and found no defect. The character of the recurring ailments indicated so clearly a foul drainage cause, and no other, that the physician finally applied himself to a minute inspection of every part of the work.

On the waste-pipe under a wash-basin in a room communicating with the nursery, he detected a very slight oozing of moisture, so slight that he did not feel sure that it existed until he found that it moistened tissue paper laid over the spot. The most rigid scrutiny developed no other leak. This pipe was taken out, and a new one substituted; and, although he or his predecessor had been called to attend some member of this family almost weekly, for a dozen years before, he was not called again for eighteen months, — and then only because of the stork.

If any thing is certainly known with reference to the house-drainage question, it is, that in an unventilated system of pipes, the foul matters which they contain enter into a putrefactive decomposition which produces poisonous, or at least injurious, gases; and, if any thing is clear to the common comprehension, it should be that pipes of a corrosible material — like lead — made by human hands and subject to the defects of all human work, containing, day and night, corrosive and injurious gases of this character, are dangerous inmates of any inhabited house. Not only do these gases find their escape through defective joints, through perforations of old pipes which they themselves have destroyed, and through traps whose sealing-water has been sucked out by a flood rushing past them in the soil-pipe; but they have, as has been clearly shown by the experiments of Dr. Fergus of Glasgow, the power of passing almost unretarded and unchanged through the water seal-traps upon which we have so long depended with confidence.

Given the cesspool and the soil-pipe charged with injurious air, it is simply impossible that under our ordinary methods of arrangement this air can be prevented from mingling with that of our imperfectly ventilated sleeping-rooms and living-rooms. Every safeguard that modern experience has suggested should be applied from the beginning to the end of the system, to make sure that, whatever may be the character of the aëriform contents of the pipes, they shall be strictly barred from escape into the house, and that every means shall be adopted to cause their escape into the free air above it.

Not only this, but every means should be taken to prevent the formation of these gases, and thus to gain the double security of their non-existence in their worst form, and of their entering our houses in their modified form.

And, first, for the prevention. Poisonous sewer-gas is a product of the unobstructed decomposition of organic matter in the absence of light and of a sufficient supply of oxygen. In its most dangerous form it is believed to have but little odor.

If the decomposition takes place with exposure to a sufficient supply of common air to furnish the oxygen needed for a more complete decomposition, the gases produced, although often more offensive in their odor, are not only less dangerous to health, but the more thorough decomposition is believed to be accompanied by a destruction of the germs of disease. These gases have in a much less degree, if they have it at all, the power of decomposing lead pipes. In other words, this worst enemy of those who live in modern houses may be entirely or quite disarmed by the simple means of supplying common air to all parts of the drainage-system.

To provide this immunity, so far as the main artery of our works is concerned, it is quite necessary to substitute for the paltry vent-pipe so generally used, a pipe of the full size of the soil-pipe itself, running with the least and the fewest angles possible, quite up through the top of the house, and provided at its summit with a good ventilating-cowl. We must also admit at the lower end of the pipe, a sufficient supply of air, — as copious as the danger of freezing in winter will allow, — to feed the suction cowl, and thus keep up a good circulation throughout the whole length of the pipe. The effect of this ventilation should be made to extend as far as possible throughout the branches of the system; and with a view to this the water-traps, which, although they are not the most effective appliances in the world, are still sufficiently useful to be retained, should be placed as near as possible to the waste outlet which they are to protect. Where the outlet of a wash-basin, for example, is untrapped until the water-seal of a distant closet is reached, it becomes in time smeared for its whole length with the accumulated soap and filth of repeated ablutions; and these, although they are not what we recognize as fecal matters, are still organic matters of the same chemical character, and they produce in their decomposition, although in much less quantity, the same sort of gases.

Let every trap, then, be as near as possible to the beginning of each waste-pipe, and let the main soil-pipe be entirely untrapped, so that, as far as may be, every outlet drain in the house shall be in free communication with a thoroughly ventilated main channel. This secured, we may rest content in the belief that, so far as lies in our power, we have prevented the formation, anywhere within our drainage-system, of gaseous emanations which can be injurious to health.

SHEET-METAL ARCHITECTURE.

TO THE EDITOR AMERICAN ARCHITECT AND BUILDING NEWS.

NOT feeling justified in permitting your remarks, directly and editorially, in reply to my communication, to pass unnoticed, you will, I think, allow me sufficient space to note a few points, some in the interest of the material we so differ about, and others in my own interest.

I quite agree with you that there has been misuse of the material, and that such is not to be allowed where reason can prevail; but that such misuse consists in substituting them (sheet metals) for stone where cornices, brackets, and a hundred other details are needed, I must deny. You will allow me to be as strong in my belief as you are in yours, of course. If in this country we are building for future ages, there would seem to be some fairness in your claim that, to be substantial, stone must be used; but when, with a few noted exceptions, even the largest structures are not permitted to stand, at the outside, but fifty to seventy-five years, it savors strongly

of wanton waste of the people's money to insist that the costlier embellishments must be in stone, at a price five to twenty times in excess of that of other material, under the circumstances, equally as good and appropriate.

"And to the use in these sheet-iron details of forms which have been designed for solid stone, and are traditionally associated with it, and to the imitation of sculptured ornament."

I again protest that the lines of the Greeks *do not* belong *exclusively* to stone, to the exclusion of all other materials, any more than the *pitch* of the roofs of their temples — an important element in their style — would compel us to build our roofs of the material used by them, because the pitch of the roofs had "been designed for" such material, "and are traditionally associated with it." If you insist upon the principle that form controls the material, what is to prevent your claiming, by the same process of reasoning, that the material must control the color, and finally the combined form, material, and color control the *use* of the structure?

Why may we not copy the lines of any good structure in other material than stone, without being open to the charge of servile imitation and debasement? Wherein consists the servile imitation? If it is apparent when an object is reproduced in matter of *lines only*, is it not doubly apparent when in the material also? Must we be confined to the material, as well as the lines, as given us by the Greeks, and not be allowed to push on to the developing of new materials to the old uses? We are very loath to believe that you take such a stand.

Every architect is, more or less, an imitator; and some are quite servile in their imitations, not daring to put an old form in a new material; no matter how appropriate to its position, and based on common-sense, it may be. Surely, "if a man has not a natural disgust for shams of this kind" it certainly *will* be "difficult to argue him into it."

There has been much written about the *distinctive and characteristic* forms of sheet-metals; but none of the writers and talkers on the subject have seen fit to put their ideas into a tangible shape. If there are such forms, and they can be put upon paper, pray give them to the trade, that we may all be benefited at once thereby.

It is not fair to make me say, that "since the Greeks stuccoed their architecture, it is equally right and desirable for us to imitate it in sheet-iron;" for I hold to no such argument. I claim simply, that, when you hold up the Greek models as the only ones worth following, you must allow us to be as expedient as were they in the use of whatever materials would seem to possess the greater number of positively requisite qualities for the work in hand. That the Greeks used stucco in many places where stone only was appropriate, according to your theory, is evident to any inquirer after the facts in the case; and that we must do *better* than they, and use all stone, or *worse*, according to your feeling in the matter, in using sheet-metals is, to say the least, not quite so evident as you would have the public believe. As to the difference between stone-ashlaring and the "imitative use of sheet-iron," we may say, though not advocating the use of the latter for wall surfaces, other than for engine-boilers and kindred structures, we *do claim* and for that matter advocate its use for cornices, window-lintels, and all the sundry light embellishments, both exterior and interior; and for the following reasons: viz., —

First, The majority of the people cannot pay for stone embellishments; and it becomes a choice between wood, brick, and metal finish.

Second, The wood is dangerous in matter of fire, soon rots out, and in most cities is prohibited by law.

Third, Brick, though the best plain building material known to the trades, is totally inadequate to convey any architectural expression; and for cornices or other bold projections is simply out of the question.

Fourth, The metals possessing the qualities of ease in manipulation, lightness coupled with strength, besides being fire and rot proof, to say nothing about economy in first cost and ease of replacement in case of damage, are much sought after; and under the circumstances it is not at all surprising that they are rapidly coming into use.

"Another argument is, that, since beauty resides only in the surface of an object, it is entirely a matter of indifference what is the material that underlies a given form. This, to begin with, begs the whole question whether the forms attained *are* artistically the same."

Where *art surfaces* alone are the objects sought for, — as in statuary, architectural embellishment, and in fact general art productions, — *it is* to a certain extent *entirely* a matter of indifference what underlies the surface; and, except in cases where the precious metals might be used, there would be but little choice between a pressed sheet-bronze statuette and one of the same material solid. In fact, the only difference, even in the precious metals, would be avoirdupois at so much per pound; neither the thickness nor weight making any variation in the artistic rendering of the surface. Hence our claim, that when art alone is required, — and all moulded and carved surfaces are art simply when taken in the true sense, — sheet-metal, or any other equally desirable material, is as appropriate as either stone or stucco.

The assertion that "they [the iron-workers] would have to employ, or else compete with, trained designers, and cannot fall back on cheap and unlimited duplication of old ideas," sounds excessively odd, coming as it does from a gentleman of a school that is wedded to the Greeks; a school that never ceases to "fall back on cheap and unlimited duplication of old ideas," when it serves their purpose so to do.

The theory that the "men of antiquity" developed their art-forms in *obedience to the different qualities of a very dissimilar material* — stone — is not to be sustained by any law or principle known either to ethics or common-sense; but that their forms were the result of long study to combine beauty with mechanics, as well as light and shade with pleasing contour of mould and composition of the mass, *totally independent of the material at hand*, is evident to any intelligent mind open to conviction in the matter; and it is as apparent to any artist, or other, that the forms under discussion can as readily be wrought in either stone or wood by similar manipulation, and in sheet-metals by a process equally as attainable, and at much less cost than in either the stone or wood.

Must the fact that these forms can be produced so as to be within the reach of almost our entire building-community, let their means be never so humble, be the sole reason why so fierce an onslaught shall be sustained? I fear that such are the facts in the case. Then, sir, why not come out boldly, and give us the "characteristic forms" which, in your mind, are so nobly due the material?

When you say that it is the metal-workers themselves, through a lack of enthusiasm, that are bringing the material into discredit, you say that which cannot be sustained, as a visit to any first-class works will prove.

No, sir: the trouble does not consist in a lack of enthusiasm, art or other, on the part of the progressive metal-workers; but, quite to the contrary, in a persistent and determined persecution of the metal interests, on the part of the parties who ought to foster and lead them to a higher plane in the art scale.

And now, sir, as you think the metal-workers are not capacitated, will you not take the matter in hand without delay, and as it is properly your right, not to say duty, give to such people the benefit of your skill and deep insight in the matter under discussion? And allow me to suggest that you *illustrate* your articles that all may fully understand you; as technical journals are apt to be ambiguous, and given to dealing in glittering generalities.

"QUAKER."

[NOTE. — Our correspondent's paper, on account of its length, has been obliged to wait some time for its turn in our columns. To notice its many points in detail, would take more space than we can give: we can only touch one or two. The real arguments that he brings up in favor of the present use of sheet-metal architecture amount to pretty much the same thing: first, that our buildings are all temporary, and therefore it is a waste of money to make them substantial; and, again, that most people cannot pay for ornamental details of stone, and that sheet-iron is the only material left. All this, as before, simply begs the question, by assuming that there is any need of such ornamental details at all. We should say distinctly that there was none, any more than that Bridget should trick out her bonnet with coarse flowers and slazy ribbons. Coarse and slazy are fair comparisons, because, though here again "Quaker" begs the question, the sheet-iron imitations of stone detail by no means look as well as the real, and they are neither strong nor durable. As to the major proposition, that the whole building of the country is temporary, so far as it is true, it is one of the things that we greatly deplore; and any thing that tended to perpetuate such a condition we should consider ruinous to architecture. And, when "Quaker" says

that brick is totally inadequate to convey any architectural expression, we mentally compare the Sheet-Metal Pavilion with the brick and terra-cotta architecture of Northern Italy, and are amazed.

We do not know why "Quaker" is so resolved to fasten upon us the doctrine that the Greeks are the only models worth following. We never said so. The only models we have proposed to him were the mediæval metal-workers. We admire the Greeks — for the straightforwardness and sincerity of their work, among other things; but he alone is responsible for bringing them into the controversy.

We must remind "Quaker" once more that we do not condemn his material, but only the way in which it is used. There are places enough, as we have said, where metal-work is appropriate in buildings, — in railing, balconies, roof-ornaments, gutters, spouts, finials, weathercocks, crosses, gates, grills, and a dozen other things. We are asked to come out and offer characteristic forms for these objects, for the benefit of the metal-workers. Unfortunately for this purpose, architects have to depend for the working-out of their ideas on the capital of other people; and it is not easy for them to enter the missionary field, unless they publish books of designs, which the most capable of them very seldom have leisure to do. Yet there is to be found a very good store of examples, here and there, by any one who will look them up. If "Quaker," and the metal-workers, who really are the interested parties in the matter and those who have the power to carry the thing out, will have recourse to a few really well-trained and skilful architects for characteristic designs of metal-work, they will find it to their advantage. And if they regard our advice as of any value, — which we are afraid they don't, — we will give them the names of a dozen or so of the capable architects and designers in various parts of the country, whose help would profit them.

One confusion in "Quaker's" argument we must not pass over. He confounds lines and forms, saying that the lines of the Greeks (why the Greeks only?) do not belong exclusively to stone. Certainly not; but one may copy the lines without imitating the forms. For instance, if "Quaker" should attempt to use the *lines* of a Greek vase in a weathercock of flat sheet metal, he might produce a beautiful design; but, if he made his weathercock in the *form* of a vase, he would probably be as disgusted with the result as we should be. It is just the difference between imitation and adaptation, — the one childish, the other manly.

Moreover it is not only the forms, but the offices, of architectural details, that are to be considered. The roof of the new Opera at Paris is covered with ornamental work in sheet metal (copper), and the mediæval roofs are richly decorated with sheet-metal work, (lead); but in neither is the material used for any purposes that suggest the employment of stone.

Our objections, then, to the use that is popularly made of sheet metal in architecture, are briefly these: that it is superfluous, that it is weak, that it is ugly, and that it is a sham; and it is so used when it might be just as well used appropriately, as the savage hangs about his neck for adornment the shoes which the trader has sold him to wear upon his feet. As an offset to "Quaker's" letter we append the following from a letter sent us from Europe not long ago. — ED. AM. ARCHT.]

LANCHÈRES, FRANCE.

"Your editorial on 'Sheet-Metal Architecture,' in No. 30 of the *American Architect*, has given me great pleasure. It is so admirably put that I should think it could not fail to carry conviction to all right-feeling and intelligent persons.

"It would be surprising to me, had I not long been familiar with it, to what extent the short-sighted and destructive views of your correspondent 'Quaker' prevail amongst professing architects. It is largely owing, I fear, to the fact that many of them are quite devoid of the native instincts which make right understanding of the art of architecture, and the function of an architect, possible. But I suppose there are always a few who take to the profession from real native inclination to it as an art of expression; and to these your clear showing of the destructiveness to honorable art of the principles held by 'Quaker' and his like, will be most helpful, as it will also to the general right-feeling public."

WALL-PAPERS.

WHATEVER license the owner may give the architect whilst the house is building, he looks upon the choosing of the house-papers as his own prerogative, and will on no account delegate it to another. Confident that he has the ability to make a judicious selection, and with an abiding faith in his own taste and judgment, he goes to his work with alacrity. Piece after piece is submitted for his approval; the variety at his disposal is infinite; the designs, all "the latest thing out," are as limitless as the changes in the kaleidoscope; and the colors "from gay to grave" daze and confuse him by their brilliancy, or appall him by their washed-out and faded look. His faith in himself gives way; for the stripes, the vines, the set patterns, and the "Japs" run together in hopeless confusion; and at length, in his desire to get through with what at first seemed a delightful task, he dashes at it, and selects at random. We all know the result. Like the man who ranged the woods in search of a staff, he picks up a crooked stick at the last; and, when he hangs his selections on the walls, he will write there in characters unmistakable, "I did it."

There are those who think that, if their walls are covered with paper-hangings of a design at once marked and showy, the end and object of wall decoration has been attained; that they have but to select some bright, clearly defined pattern, heightened by a touch or two of gold, to insure a speedy recognition of their taste and judgment in such matters. Of course, there will be found many who will admire a room so papered, and wonder where the hangings were obtained; and there are those too, who, going to the other extreme, will be amazed that any one could content himself in a room so decked with finery.

Color is essential to our happiness; there can be no question about that. Even the birds recognize it; and man in every stage, from the lowest in the scale to the most cultivated of his race, has acknowledged its potency. It matters not how degenerate he may be, how far removed from every trace of civilization, of one thing we may be certain: the visage of the savage, wherever found, will be daubed with the strongest colors, and his bark canoe and murderous club will be incised with red and yellow ochres. A higher civilization finds expression in a more thorough appreciation of color; and the examples left us by the Egyptians, the Greeks, and the Pompeians, bear witness to their love of and skill in the decorative arts.

When wall-paper first appeared, it was thought to be, as it really was, a great advance on the only custom then in vogue, — that of decorating with the painter's brush, or covering the walls with tapestry. Both these methods of decorating were beyond the reach of all but the wealthy; and when it was found that house-paper, although loaded down by a burdensome tax, could be produced at a cost much below that of painting or arras, it at once came into favor, and has continued to be deservedly popular. On the history of wall-paper, its steady development, and its present status, it is not necessary to dwell; but, whilst we recognize its position and the good it has done, we are not unmindful of its shortcomings, or of what it has yet to accomplish. That the manufacturers are not wholly to blame for the defects of their products, we are free to admit. The public, hungry for display, demand the greatest amount of show for the least money, which has led them to bring out designs intended to catch the eye, rather than to appeal to our sense of propriety and the fitness of things.

No man can give rules for selecting house-paper, or aid one in that work, if he be not present when the selection is made, and has no knowledge of the room in which it is to be hung. To do this successfully, he must be advised of the size of the room, its aspect, its use, and what the paper is to be brought into contact with in the way of carpets, furniture, and pictures. Lacking this information, he could not say whether the room should have a bright and gay paper, or one plain and subdued. It might require a design calculated to give it height; or the ceilings may be already too high, in which case something to reduce the apparent height would be needed. Through a lack of windows, or from being on the shady side of the house, it may be dull and unattractive without some fresh and spirited design on the walls; or, basking in the sunshine, it may need subdued colors to balance and counteract an excess of light. One pattern looks best in the roll: another

appears to better advantage on the walls. A bright bouquet may strike one as pleasing; but a repetition of a set pattern makes a wall look blotchy. Figures in the round are not to be tolerated; and flat designs — well, some of them are good: I wish I could say it of all.

How can one give rules that will meet all these conditions? It is impossible; but I may caution all who have this matter at heart to study it carefully, and not rely too much on their own judgment till they have strengthened it by experience. A woman studies the dress of every other woman, and sees through and through every detail of her intricate make-up. It is with her intuitive: nothing escapes her scrutiny, and even a casual glance enables her to describe a dress with an accuracy that attests her skill in unravelling such enigmas. The same amount of attention to the subject under consideration would enable her to make judicious selections, when the time came to re-paper her walls and re-furnish her rooms.

THE LATEST PERIODICALS.

ALL of the English periodicals give excerpts from the papers read at the late Social Science Congress at Liverpool. These papers, many of which the *Architect* gives in full in a separate supplement, are on "Street Architecture;" on "Mural Decorations and Frescoes," where it is argued that until mural painting on a large scale is encouraged, no truly national school of art is possible, and that it has failed in England because real fresco-painting has been rarely resorted to. The address by the president, Mr. Poynter, was on the "The Influence of Art on a Nation;" another on "The Influence of Academies on National Art," the writer of which, reasoning from what have been the results accomplished abroad in music, the drama, and art, is of opinion that they are of much substantial value to the growth of art. Mr. Eastlake's views on "The Influence of Decorative Art on Society" are such as those acquainted with his writings would expect. Mr. Burges's second paper on scenic archæology criticises unsparingly Mr. Godwin's labors in behalf of "Henry V." "The Sculptures of the Parthenon" speaks approvingly of Stephani's attempt to establish an identity of subject between the sculptures of the tympanum of the Parthenon, and the decorations of an early Greek vase in the Museum of St. Petersburg, of which he is the head. Illustrations of the decorations on the vase, and of the sculpture in the tympanum of the Parthenon in various stages of decay, occupy two pages; and in connection with this subject is presented a double-page perspective drawing of a restoration of the Parthenon; but whose it is, is not stated. "A Volume of Etchings" is a *critique* on a new volume of fifty plates, after pictures ancient and modern, by the best French etchers, together with over two hundred pages of letter-press by M. René Ménard. The strike at the Messrs. Doulton's building still excites much interest even among the French. From new evidence, it appears that the strike was not urged by the officers of the Bricklayers' Union, but was a matter purely personal to the men employed on the works, many of whom seem to have been non-union men. The *Building News* gives an account of the various restorations of Durham Cathedral, the most recent of which were commenced in 1868, and are but just completed. "The Best Form for Wrought-Iron Tension Rods and Bars," is an interesting account of the experiments that were made in Russia, where, by reason of having to transport the iron for a suspension bridge, some sixteen hundred tons in all, over three hundred miles of bad roads, it was desirable to reduce the weight by omitting all the material that was strictly superfluous. A double-page illustration of the new London Opera House now building is of much interest. The *Builder* takes up, what the other journals do not, the papers on sanitary matters read at the Social Science Congress at Liverpool. Railway matters in Canada are discussed. Paving-charges are commented on at much length. These, with "A Thought or Two about Constantinople," are about all that is not common to the other English journals. *La Semaine des Constructeurs*, in speaking of the use made of sand in striking centres, suggests that sand may be similarly used in bringing buildings to a lower level, thus supplementing the American use of jackscrews. There is also a valuable practical paper on the "Employment of Cements." The comments on the bricklayers' strike at the Messrs. Doulton's are unfavorable to the strikers. The illustration is a perspective view of the scaffolding used upon the new Hôtel de Ville at Paris.

SEWER-VENTILATION. — New Haven is actively investigating the matter of ventilating its common sewers.

NOTES AND CLIPPINGS.

THE CENTENNIAL EXHIBITION BUILDINGS. — On Nov. 30 will be sold at auction the following buildings belonging to the Centennial Board of Finance: Main Building and Carriage Annex, Agricultural Hall, with Wagon and Pomological Annexes, the Art Annex, Photographers' Exhibition Building, Shoe and Leather Building, Judges' Hall, Butter and Cheese Building, guard station-houses, and various other small buildings.

THE OHIO BUILDING. — It is probable that the Ohio State Building, as it is substantially built of stone, will be either presented to or purchased by the Park Commissioners. Possibly the German Pavillion will also be preserved.

THE NEW PHILADELPHIA NORMAL SCHOOL. — The new Philadelphia Normal School was formally dedicated on Oct. 30. It is a four-story structure, having a frontage on Spring-Garden Street of one hundred and sixteen feet, and running back one hundred and fifty-eight feet on Seventeenth Street. In the first story there are six large class-rooms, and five for primary pupils. A large and lofty assembly-room one hundred and seven feet by one hundred and sixteen feet, and capable of seating twelve hundred people, occupies the great part of the second story. In the third story there are ten class-rooms, and the fourth story is similarly divided. The basement contains, besides the offices and janitor's rooms, a large apartment for physical culture. The entire building cost, including the lot on which it stands, $266,102.12, and will accommodate 2,480 pupils.

THE AMERICAN ACADEMY OF SCIENCES. — The five new members of the American Academy of Sciences are Prof. J. A. Allen of Cambridge, a zoölogist recognized as an authority in ornithology; Prof George F. Baker of the University of Pennsylvania; Prof. William M. Gabb of Philadelphia, a palæontologist; Prof. E. S. Morse of Salem, a naturalist, who may be described as an ultra-Darwinian; and Gen. John Newton of the United States Army.

BUILDING AT PHILADELPHIA. — The whole number of permits issued by the building-inspectors of Philadelphia, during the month of October, 1876, was 639, as follows:—

Dwelling-houses, two story	229
" " three story	208
" " four story	9
Stores and dwellings, two story	1
" " three story	5
Stores, one story	4
" three story	1
Alterations and additions	84
Back buildings	40
Stables	26
Ice-houses	6
Shops	3
Carriage-house	1
Dye-house	1
Factories	6
Chapel	1
Mill	1
Saloons	2
Offices	2
Hotel	1
Slaughter-house	1
Sheds	2
Store-houses	2
School-house	1
Hothouses	2

ACCIDENT TO A BUILDING. — During the forenoon of Oct. 31 one of the iron supports to a hydraulic press in the fifth story of the Case, Lockwood, & Brainard Company's building at Hartford, Conn., gave way; and the press, weighing with its contents not far from nine tons, crushed through the floor to the folding-room beneath, where its progress was stayed by a heavy beam upon which its supports had rested. The building was shaken to its foundations, but most fortunately no one was injured. A larger press, which stood in close proximity to the wrecked machine, was undisturbed by the shock.

ENAMELLED BRICKS. — A new building-material has lately been introduced in Philadelphia by the "Brick Enamelling Company." The company have large works at Old York Road and Hunting Park; and are enamelling about six thousand bricks per day, in all colors and shades of colors. The enamel is put upon the finest quality of face-brick made by the "Excelsior Brick and Stone Company;" and the brick are said to be as perfect and beautiful as the finest porcelain ware. The enamel is inseparable from the bricks, and renders them impervious to moisture. The color is unchangeable, and nothing can permanently soil or mar their beauty. The cost is said to be not much above that of the regular made bricks.

SLATES. — The *Builder* says that a cargo of slates has been received at Lowestoft from New York, and that they are cheaper than those brought from the Welsh quarries, while their quality is as good.

M. DE LESSEPS AND LORD PALMERSTON. — The translation of the letters and journal of M. de Lesseps has been published in England, under the title of "The Suez Canal," from which it appears that M. de Lesseps — whose father, a secret agent of Napoleon I. in Egypt, had placed Mehemet Ali, the father of the future patron of the successful engineer, under serious obligations — encountered from rulers and ministers the treatment that the projectors of such apparently visionary schemes usually meet with. Among other rebuffs, he was told by Lord Palmerston, then prime minister of England, that it was not only "impossible to make the canal," but that he knew "more about the question than all the engineers in Europe." Of this interview M. de Lesseps says, "As I listened to him, I asked myself from time to time whether the man before me was a maniac or a statesman."